

The
Macdonald
FARM *Journal*



SEPTEMBER 1962

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The Macdonald Farm Journal is published by Rod & Gun Publishing Company, also publishers of **Rod & Gun, Au Grand Air, The Baker's Journal and Sporting Goods News**, 481 Beaconsfield Blvd., Beaconsfield, P. Q. Authorized as second class mail by the Post Office Department, Ottawa, and for payment of postage in cash. Price 25 cents per copy. Subscription rates are \$2.00 per year; \$3.50 for two years in Canada. \$1.00 extra elsewhere. Address subscription renewals to Macdonald Farm Journal, 481 Beaconsfield Blvd., Beaconsfield, P. Q.



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SEPTEMBER 1962

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RESEARCH LEADS TO IMPROVEMENT

HORMONES IN FINISHING BEEF STEERS AND CATTLE

by Prof. M. A. MacDonald, Animal Science Department,
Macdonald College

BEEF CATTLE producers are always anxious to improve the rate and efficiency of their animals through scientifically and economically sound methods of management. Thousands of experiments have been analysed and the results published permitting the establishment of principles upon which to build a successful beef cattle management programme.

One of the most rapid methods of altering an animal's metabolism is by changing its hormone status. Thus, many hormones have been used in attempts to improve rate and efficiency of gain through injection or by addition to the diet.

Thyroxine

Before the turn of the century it was found that thyroid gland removal resulted in reduced energy metabolism and by feeding thyroxine, the metabolic rate of an animal could be doubled. Hypothyroidism is associated with a tendency to fatten so not long after the discovery of the thyroxine antimetabolites, thiourea and thiouracil, they were used in feeding trials. Results were conflicting because of the variability of response by individual steers and the interaction or influence of environmental temperature and level of feeding. Below or above an optimum dosage, the animal's thyroid alters its hormone production in proportion to the amount of thiourea or thiouracil fed. These substances are seldom used commercially now for cattle.

Testosterone

That bulls grow faster than heifers is known to all. This is

due to the influence of the male sex hormone testosterone. Similarly, the effects of altering metabolism by surgically removing the testicles (castration) or the ovaries (spaying) of beef cattle have been equally well known for many years. Since bulls are the fastest and most efficient-gaining of the groups mentioned it is logical that some of the early studies of the effect of hormones on beef cattle should have been made with testosterone. Testosterone injected into steers and heifers gave a marked increase in gains and feed efficiency during the growing period, particularly in heifers. Efficiency of gain was also markedly improved by testosterone injections. It appeared that following injections both steers and heifers were able to grow and convert feed almost as well as bulls of similar breeding.

Testosterone has a marked masculinizing effect in both steers and heifers as well as in bulls. It is indicated by an increased percentage of round and chuck together with a decreased percentage of loin (reduced kidney fat). Consequently, because of less fat covering and a crest development, testo-

sterone injected animals receive lower carcass grades than their untreated counterparts. Furthermore, because testosterone stimulates protein deposition and reduces fat deposition, roasts show more evaporation loss and increased toughness.

It must be concluded that if current grading standards may be ignored, testosterone injections or implants are a satisfactory way to improve rate and efficiency of gain in beef steers and heifers. However, a much simpler method to get a similar carcass would be to leave bulls entire.

Diethylstilbestrol

With the possible exception of antibiotics, hormone-like compounds have received more attention than any other phase of applied beef cattle research in recent years. For example, all papers published in the annual Proceedings of the Western Section of the American Society of Animal Production and the percentage of papers devoted to reporting investigations in which diethylstilbestrol was used are as in the chart below.

Year	Number of Papers Published	Papers Reporting Studies of Diethylstilbestrol	
		No.	%
1953	42	0	0
1954	42	0	0
1955	46	2	4.3
1956	68	6	8.8
1957	45	13	28.8
1958	57	7	12.3
1959	50	6	12.0
1960	42	6	14.3

One is tempted to ask if it was an extreme demand for further information, the ease of implantation or lack of originality that motivated so much interest in this compound.

Diethylstilbestrol is one of a group of synthetic substances which exerts physiological effects similar to some of those of the natural estrogenic hormones. The natural estrogens in normal amounts are essential for the physiological changes associated with the feminine characteristics which accompany development to maturity.

It would appear from reviewing the mountain of literature available that it is possible to implant or creep feed suckling calves at three months of age or older with diethylstilbestrol and increase rate of gain. Studies conducted at various Canadian Universities, including Macdonald College, indicated that rate and efficiency of gain in diethylstilbestrol treated compared to untreated cattle varied from positive to negative and carcass grades were as good or less good as those of control cattle. As far as we are able to determine from studies with cattle and sheep, the successful use of diethylstilbestrol is dependant on treatment level and calorie: protein ratio. The use of diethylstilbestrol probably averages somewhat in excess of ten percent improvement in rate and efficiency of gain with the side effects on carcasses varying from none to significant. Other derivatives are being studied currently.

Hexestrol

Just as the British have preferred to work with hexestrol in preference to diethylstilbestrol for dairy cattle, they also prefer to study the possibilities of obtaining increased rate and efficiency of gain in steers using that product. Fortunately, for a reviewer they began work much more recently, and have published considerably less on the use of that synthetic hormone. Trials published have involved implanting varying amounts of hexestrol up to 120 mgm. per head. Although the responses of heifers varied from 0 to 33 percent increase in rate of gain steer responses in one trial increased rate and efficiency of gain considerably, while in others the response was in the order of 20 percent or less. Some side effects were reported which showed results of treatment similar to those obtained when steers were implanted or fed

diethylstilbestrol. They included increased carcass leanness, particularly a reduction in kidney fat.

Synovex

It is apparent from the foregoing, that while rate and efficiency of gain may be generally improved by single hormone implants or oral treatment, carcass quality often suffers. The problem then is to maintain or enhance the gains in feedlot animals yet improve carcass quality by the combined efforts of more than one hormone. In addition, with the licensing of hormone implants, considerable controversy has arisen over the value of "natural" hormones because in contrast to diethylstilbestrol about which there has been numerous reports published, there have been few reports published about Synovex, the most recent sex hormone implant to be marketed in Canada.

Synovex is a trade name for a combination of hormones; Synovex-S (for steers) contains progesterone and estradiol benzoate, a male and female sex hormone. Feedlot operators seeking more desirable form of implant were using Synovex as early as the first trials were being conducted at Canadian research institutions. Its value is being studied currently.

Aberdeen Angus yearling steers were brought from three properties and combined with cattle from Macdonald College in a feedlot study. Animals from four herds were used to avoid a possible genetic-hormone interaction. After a preliminary feeding period of two weeks the steers were randomly divided into two groups. One group received implants, the other served as controls. Throughout the trial, animals were fed according to US-NRC standards and both groups were fed the same amount. Groups were not self-fed because it would be contrary to the management system generally practiced in Quebec. Animals were individually identified and weighed at fortnightly intervals. In short, it was a typical group feeding regime with a duration of 112 days.

Synovex implanted steers gained

2.5 lbs. per day compared to average gains of 2.08 lbs. per day for the control steers, an increase of 20.3 per cent. There was no evidence of genetic-hormone interaction; treated steers from each of the four herds outgained control steers.

Because both groups were fed equal amounts the feed efficiency of the Synovex animals was 20.3 per cent better than the control animals.

These results compare favourably with a trial conducted at the University of Alberta, although there, they started with heavier steers and fed to heavier light-weights using a 2:1 ratio rather than the ratio of equal parts of meal and hay used at Macdonald College. The Alberta steers gained at a rate of 2.54 and 1.89 pounds per day with feed intakes of 9.92 and 12.34 lbs. per day for Synovex and control steers, respectively.

Steers fed at the University of Saskatchewan returned a 14 per cent increase in rate of gain over control steers. Among steers fed at the University of Manitoba, those implanted with Synovex gained 10 per cent more than controls and slightly more than steers implanted with diethylstilbestrol. Feed efficiency followed the same pattern.

Carcasses graded identically in the Macdonald College experiment and at the University of Manitoba hence: there was no price differential to consider on assessing the carcass values and there was no evidence of undesirable side effects in any of the four Canadian university studies. At the Universities of Saskatchewan and Alberta, Synovex steers graded higher than controls.

In all three of the experiments where dressing percentages were recorded (Alberta, Manitoba and Macdonald College), dressing percentages were equal to controls hence, extra gains could not be attributed to fill or non-carcass components of the animals.

Despite continuous efforts to increase the rate and efficiency of beef cattle production by the use of hormones and other methods, there remains much room for improvement. Only further research will provide that improvement.

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Food Fallacies and YOU

by Mrs. M. Zarkadas,
School of Household Science, Macdonald College.

Magical qualities have been attributed to certain foods since the earliest days of history. The Egyptians fed their laborers garlic to endow them with enough strength to build the pyramids. The Romans used the juice of artichokes as a hair restorative. These fallacies about foods may seem silly today but almost all of us have certain notions about foods which have no scientific basis.

Fallacies about foods are a matter of concern because frequently people will omit certain essential foods from their diets or avoid certain food combinations because of them.

The following is a list of statements about foods. In the space at the left mark whether you think the statement is true or false then continue reading and see how well you have scored.

true or false?

- 1. Vegetable juices are superior in nutritive value to raw or cooked vegetables.
- 2. Cooking foods in aluminum cookware is more dangerous than cooking them in stainless steel.
- 3. Water is fattening and should be restricted when dieting.
- 4. Toast has fewer calories than bread.
- 5. Lobster and milk should not be eaten at the same meal.
- 6. Fish is a brain food.
- 7. Uncolored soft drinks contain no calories.
- 8. Gelatin is a good source of protein.
- 9. Vegetables grown in organically fertilized soil are higher in nutritive value than those grown in chemically fertilized soil.
- 10. One valuable way of cutting down calories on a reducing diet is to skip breakfast.

If you have answered "false" to each of these statements you have scored 100%.

These are only a few of the hundreds of misconceptions or fallacies about foods. Let us examine at least a few of these mistaken ideas about foods, and see where they originate.

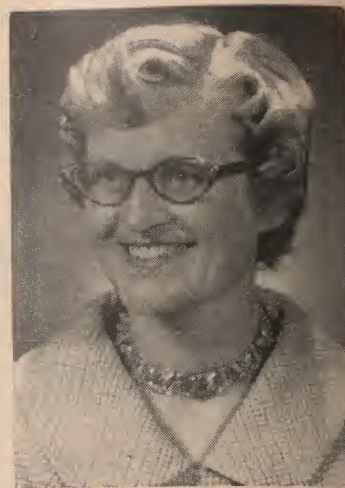
old wives' tales

Some food fallacies are what we might call "old wive's tales" such as the statement that lobster and milk should not be eaten at the same meal. This probably originated in the days before refrigeration when people became ill from eating unfresh lobster and happened to drink milk at the same meal. The mistaken idea that fish is a brain food may also come under the category of "old wive's tales" for when fish is cooked a soft whitish protein material remains in the pan, and this may have been compared to brain tissue.

Misinformation about nutritional values of foods is another source of food fallacies. The superior qualities of gelatin as a food have been greatly emphasized in the past few years and yet gelatin is not nearly as good a source of protein as meat, eggs or cheese since it does not contain all the necessary amino acids for growth and development. Because of this, its usefulness as a cure for splitting finger nails is also questionable.

Another example of misinformation about foods is given in statement 7. Many people drink carbonated beverages thinking they are very low in calories. In fact they contain between 85 and 100 calories per cup, and the only nutrient they contain is sugar. Compare this to skim milk, which provides protein, minerals and vitamins and contains only 90 calories per cup.

"Quacks" and promoters, who are usually trying to sell a certain



Mrs. M. Zarkadas

product for personal financial gain are another source of (often dangerous) food misinformation.

Some promoters have become rich selling vegetable juices or machines to make vegetable juices, saying these juices are much superior to vegetables in nutritive value. Vegetable juices of course cannot contain more nutrients than the vegetables from which they were made.

Organically fertilized vegetables have also been promoted by many nutrition quacks as being superior to those grown in chemically fertilized soil. They are not superior and to pay extra money for "organically grown" foods is a sheer waste of money.

The "aluminum pot scare" was another example of misinformation originated by promoters and their purpose in this case probably to reduce the competition of the stainless steel cookware industry. Aluminum cookware is just as safe as stainless steel, and is not dangerous in any way.

In Canada today there is very widespread interest in reducing diets, and with them have come new food fallacies, some of them unfortunately spread by people who are not qualified nutritionists, but who set themselves up as food experts.

One example of their statements is number 3, regarding the water intake on a reducing diet. A weight loss due to a reduction in water is only temporary and may be dangerous if carried on too long. A healthy person on a reducing diet will excrete any excess water taken in, and under normal circumstances the diet must contain ample liquid

(continued on page 21)



When to Plough ... AND WHY

THE IMMEDIATE OBJECT of ploughing is to turn strips of earth upside down. This leads to the destruction of the existing vegetation and, at the same time, exposes the underlying soil to the action of the weather. The ultimate purpose of ploughing is to prepare the soil for the sowing of another crop. The greater the need of the new crop for a fine seed-bed and a good tilth in which to grow, the greater is the need for good ploughing in the fall.

Soil tends to become too compact if it is left undisturbed: ploughing breaks it up and pulverizes it and, by allowing air to penetrate, favours the soil micro-organisms and consequently benefits the crops.

Good Ploughing

Mr. N. Parent of the Quebec Department of Agriculture and Colonization says that good technique requires that the width of the strip which is turned over by one and a half times its thickness. Thus, if you are ploughing six inches deep, the furrow slice should be nine or ten inches wide so that it will lie at an angle of forty-five degrees.

When to Plough

Whenever possible, it is better to plough *in the fall*, for the following reasons:—

1) Our rigorous winter climate causes alternate freezing and thawing of the soil; this makes the soil more loose and porous;

2.) Fall ploughing, by bringing

to the surface insects and their larvae lying concealed beneath the soil, exposes them to destruction at a time when they are vulnerable;

3) Since a larger surface is exposed to the rain and snow for a longer period of time when the land is ploughed in the fall, the reserve of soil moisture in the sub-soil is increased;

4) Providing that the soil is well drained, ploughed land thaws out and warms up more quickly in spring and therefore can be worked and sown earlier;

5) Autumn is a comparatively slack time on most farms; the practice of fall ploughing therefore leads to a more even distribution of labour and machinery and less hurry in the following spring.



Roger Turcotte harvesting this year's crop of potatoes on his father's farm at St. Fulgence de Chicoutimi, P. Q.

70,800 farms, to which it brings total returns of about twenty-one million dollars.

During recent years, the "chips" industry in this Province has developed greatly: valued at seven million dollars, it now constitutes 44% of all the Canadian production. However, much still remains to be done to put potato production in the Province of Quebec on a highly efficient footing. My colleagues and I have held a number of inter-departmental conferences about this matter, particularly in connection with the production of elite seed, storage, grading, and marketing.

Every year, our growers import over one hundred thousand (100,000) bags of seed potatoes, in spite of the fact that Quebec has everything that it takes to satisfy her own requirements. In March 1961, my Department laid down the foundations of a station for the multiplication of elite stocks of seed potatoes in the County of Saguenay, on the North Shore. This spot was chosen because the region offered a combination of suitable conditions: favourable soil

The Potato Industry

from an address by Mr. Alcide Courcy, Minister of Agriculture and Colonization to the sixth annual potato conference, Macdonald College, August 15.

A COMPLETE STRANGER to agriculture would fail to understand the reason for this national conference on the potato. He would be even more surprised to find that it is the sixth. "Why bring so many people together so often" (he might wonder) "to discuss a crop which has been familiar for so long and is probably one of the simplest in the world?"

But we who have fewer illusions know that the growing, handling, and processing of potatoes have many aspects that are far from simple. As you are aware, one could quickly fill a library with the books and papers written on such phases of potato growing as the technical and economic problems of irrigation, the maintenance of humus, the use of commercial fertilizers on quality, the control of insects, diseases, and weeds, the many varieties of potatoes and their special characteristics, and a host of other problems.

For a long time, the potato was regarded as a food consisting en-

tirely of starch, and hence fattening, and, into the bargain, very poor. Science has re-instated this vegetable in the public esteem by recognizing its great nutritive properties. It is astonishing that this revival has come so late.

However, this scientific rehabilitation of the potato as a food, has not prevented a very considerable decrease, during past decades, in the quantity eaten per head of our population. Technical advances and industrial progress have come to the rescue, and we now have potatoes on the market in a variety of forms: dehydrated "instant" potato, "chips", frozen French fried, etc., all equally appetizing and some deserving to be classed as delicacies. All these innovations, I think, have helped to raise the "per capita" consumption of the potato during more recent years.

In the Province of Quebec, the potato is our third most important crop, coming immediately after hay and oats. It occupies altogether ninety thousand acres of land, on

and climate; beneficial influence of sea and wind; absence of trees and shrubs which might serve as host plants to insect disease-carriers; the possibility of perfect isolation. All these are excellent conditions for the maintenance of plots for the multiplication of seed, in a healthy state. We believe that in 1964 our Station at Manicouagan will be able to start distributing elite stock to be used for the production of further seed stocks. We intend that the potato growers of the Province of Quebec shall be the first to benefit from this high-grade seed which we are going to produce. Later we may have a surplus, of which we will be glad to allow our sister Provinces to take advantage.

The Problem of Storage

It must be admitted that it will be impossible for the potato growers of our Province to improve their production as long as they lack storages which will ensure the

proper keeping of their product. But our growers do not have the necessary funds to build such storages.

One way of getting out of this vicious circle, without putting too heavy a burden on the financial resources of the provincial treasury, would be to turn to the federal-provincial policy of assistance for the construction of potato warehouses (Order in Council 2017). Under the terms of this Order in Council, as you know, agricultural cooperatives may be authorized to build themselves a storage if they can find 25% of its cost. The balance of the capital investment is assumed jointly by the Government of Canada and the Government of the Province concerned; 37½% of the cost of the construction being covered by a grant, and the remaining 37½% by a loan which the co-operative in question must repay at the rate of not less than one cent per bushel.

A number of agricultural cooperatives in the Province of Quebec are now ready to take advantage of this policy, thereby showing their resolution and desire for progress.

grading. But the idea is now making much headway here.

A committee will shortly report to me concerning changes to be made in the Act and Regulations concerning the grading and sale of farm products. I know that this committee will recommend the establishment of supervisory zones in connection with compulsory grading of potatoes, the setting-up of inspection points, and the issue of trucking permits. It will also recommend the adoption of federal standards for the interprovincial and national potato trade. Personally, I am in favour of all these measures and, if I am to judge by the many requests which reach me from all quarters, Quebec will very soon enforce the necessary measures to ensure strict grading of potatoes. There is no doubt that the future of this crop depends on it.

Marketing

We have here a complicated problem to solve, owing to the fact that commercial potato growing is carried on in several regions of Que-

Quebec Province

The Provincial Government is also prepared to do its part.

We do not, of course, want to plunge blindly into such arrangements. It goes without saying that, in the first place, the solvency and administrative soundness of a co-operative must be established. Secondly, the growers must enter into an agreement to respect certain conditions concerning growing methods and the quality and quantity of potatoes to be brought to the storage.

Unfortunately, it is within the bounds of possibility that current austerity measures may cause some delay in the application of our present plans. Let us hope that such a delay, should it occur, will not last long, and that in any case the Government of Canada will give high priority to this policy of financing, as soon as circumstances permit.

Grading

Not being an exporter of potatoes, Quebec was later than the other Provinces in realizing the advantages of a strict system of

bec. It is therefore necessary to act, not merely on a regional scale, but also on a provincial scale.

This fall, the Legislative Assembly of Quebec will adopt the draft of an important Act, designed to define and increase the powers of the Agricultural Marketing Board, especially as regards the organization of provincial producers' boards. One can foresee that the day is near when the potato growers of the Province will be called upon to show by a vote whether they are ready for the organization of a provincial producers' marketing-board, with a selling agency if necessary, in order to ensure orderly marketing of the potato crop of the Province of Quebec.

I believe that it is even necessary to go further and to consider that the next need might be for inter-provincial potato-marketing boards.

In conclusion, I should say that the Government of Quebec must and will give the potato producers the necessary tools; it will then be up to them to finish the job. I am confident that they will do so.

WITH DAIRY COWS— FEED ACCORDING TO YIELD

W. K. Meyer
Chief Nutritionist



SHUR-GAIN PUTS THE GAIN IN DAIRY FEEDING

A dairy cow utilizes part of her feed for body maintenance and the rest for producing milk. For sound economical milk production, it is important therefore, not only that she is fed a properly balanced ration, but also that the level of daily feed intake is related to her productive capacity.

Cows must be fed a ration that provides all the nutrients they require both for body maintenance and for all the milk and fat they are capable of producing. Failure to provide sufficient nutrients will result in production dropping to a level determined by the nutrients they do receive.

It is now generally recognized that the limiting factor in the dairy cow's ability to reach and maintain top production is the energy supplied by her total feed intake. Obviously sufficient roughage cannot be consumed to supply the energy requirements of a cow in production. The only way to provide sufficient energy for optimum milk production is through the use of high energy rations such as Shur-Gain Dairy Ration or home grown grains balanced with Shur-Gain Supplements.

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THE FAMILY FARM

PUBLISHED IN THE INTERESTS OF THE FARMERS OF THE PROVINCE
BY THE
QUEBEC DEPARTMENT OF AGRICULTURE AND COLONIZATION

PREVENTION OF INJURIES TO POTATOES

BEFORE VERY LONG we shall be starting to harvest the bulk of the fall potato crop and that, unfortunately, is also the time when we shall see the cancellation of much of the care and effort which have been devoted, since the beginning of the season, to the production of a high-quality crop. Apart from poor yield, mechanical injuries or bruises make the most serious inroads into the potato grower's profits. Investigations in the United States have shown that more than half of the damaged tubers which reach the consumer received their injuries during harvesting operations.

The following practices and precautions would be effective in reducing such casualties to a minimum.

1. Harvest mature potatoes, i.e., those whose tops have been dead for ten to fifteen days.
2. Avoid operating when the temperature is below 40°F.
3. Use a potato digger with a single elevator, as flat as possible and at least 26 inches in width.
4. Use a short digger-share or blade, polished and well-sharpened and suitably inclined.
5. Set the digger point deep enough to eliminate sliced potatoes and so that soil will be carried two thirds of the way up on the digger-chain, to act as a cushion.
6. Reduce the ground speed of the machine to not more than 1½ miles per hour.
7. Reduce speed of the digger-chain to the minimum required, 125 to 150 feet per minute or less, or seven or eight turns to the minute.
8. Keep the elevator tight enough not to sag or "whip."
9. Reduce the shaking motion of the elevator to the indispensable minimum by replacing a sufficient number of agitator sprockets (idlers).
10. For sandy soils, pad the links of the elevator with rubber tubing.
11. Operate the digger chain with the raised portion of the link ends on the underside (or shield them with belting). For this purpose,



Extreme care is executed by members of the G. Filiatrault family of Ste. Rose de Laval in the sorting and bagging of their potato produce.

pose, replace the two forward conical sprockets by vertical-walled sprocket of a slightly larger size.

12. If you use a potato combine or harvester, pad the sacking platform.

13. Whenever possible, do not allow potatoes a free fall of more than six inches.

14. Pad the floor of trucks or wagons which are used for picking up the bags of potatoes.

15. Handle the bags of potatoes carefully.

16. When filling a cellar, use a chute of canvas or jute.

17. Avoid walking or stepping on bags or piles of potatoes.

Cleaning up the Raspberry Plantation

As soon as the raspberry harvest is over, it is advisable to do the job of removing the canes which have borne fruit. If this task is put off for too long, there is a danger that the plantation may be stimulated into belated growth, so that the wood of the raspberry plants will not have time to mature, and serious damage may be caused by frost during the winter.

Mr. Paul Vanier, instructor in horticulture of the Quebec Department of Agriculture and Colonization makes the following recommendation:

Remove the canes which have borne fruit and burn them, away from the plantation.

In order to restrict the spread

of disease, do not allow the row of canes to grow wider than 24 to 30 inches.

Do not keep too many young stems in the row. Thin them out, by removing the less vigorous, until they are not less than a hand's width apart.

Do not apply any fertilizer after picking. Wait until the following spring.

It is a good idea to sow fall rye or oats between the rows, and plough it under late in the fall.

This work of cleaning up and thinning out should be done as soon as the harvest is over, so that the vigour of the raspberry plants will be preserved and frost damage prevented.



A drainage ditch which has been deepened on the farm of Mr. Bernard Perreault at L'Assomption, P. Q.

Upkeep of Drainage Systems

Only too often we find that the ditches and drainage furrows which run across our farms are not doing what we expect of them. Mr. R. Cloutier of the Quebec Department of Agriculture and Colonization reminds us that this particular time of the year is especially suitable for attending to drainage systems, even though the amount and kind of work to be done on them may differ considerably from one farm to another.

On some farms, the outlet or line ditches may urgently need straightening, enlarging or deepening; on others, it would be a good idea to clean out and widen one or more of the ditches to allow the surface water to reach them more easily.

Once the outlet ditches are in good order, the drainage channels and dead furrows should be cleared of any obstructions which would hinder the free flow of water to the main water-courses.

Autumn rains and spring runoff are amongst the worst enemies of good tillage practices. Water-soaked soil takes much longer to prepare in spring and such a delay always shows up at harvest time in lower yields.

Be sure to take the necessary steps to keep drainage channels and outlet ditches always in good working order, so that the water they are intended to drain away will be removed at the right time and, as far as possible, under ideal conditions. It is easy to underestimate the importance of drainage systems and thus fail to give them the care they need. It pays to look after them.

This page supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.

HANDLE ROOT VEGETABLES WITH CARE

The growing season is drawing to a close. Very soon, orchards and gardens will have yielded their harvest and most of it will be stored for use in the home during the winter or for future sale.

Generally speaking, fruits and vegetables in season, which are offered for sale to the public in the course of the summer, are in very good conditions because special care has been taken with their handling and presentation. Mr. David Leblond of the Quebec Department of Agriculture and Colonization points out that, unfortunately, the same cannot be said for those harvested at the end of the season, especially vegetables intended for keeping in root cellars or other storages.

Every year, it is evident that potatoes and root vegetables in particular are harvested and handled in such a way that they receive considerable injury. Such injuries sometimes lead to various kinds of decay and thus to appreciable losses. Rotting and decay can, of course, follow in the train of diseases which attacked the plants while they were growing in the field: for example, late blight and bacterial ring rot of potatoes; rhizoctonia rot, and sclerotinia rot of carrots; blackleg of turnips, etc. Nevertheless, in many cases, it was injury which opened the door to decay.

Because tubers and roots are fairly firm and therefore seem to be able to withstand blows and rough treatment, they are rarely treated with the care that is due to them, when they are being harvested and transported to storage and finally to market. It is obvious to most people that fruit such as apples and plums, for instance, are more delicate and deserve special attention: but root crops, too, are not proof against the injuries to which they may be exposed by careless handling. It should be remembered that even the slightest damage to these vegetables offers a highway to infection and decay.

From spring onwards, a great deal of money and effort goes into the tilling and enriching of the soil, seeding and cultivation, etc., and the crops are treated more than once to protect them against insects and diseases. It surely does not make sense to spoil everything at the last moment by neglecting to take a little extra care with the fruits of all this toil.

THE GRADING OF APPLES

The apple growers of the Province of Quebec will soon be sending their fruit to the public markets and stores. Mr. Fernand Laliberté of the Quebec Department of Agriculture and Colonization believes that we cannot insist too often on the importance of offering for sale on our local markets only apples which are mature, well coloured, and likely to leave the consumer with an excellent opinion of Quebec fruit. Buyers ask nothing better than to offer their customers a high-quality product in the shape of apples which have been picked at the right time, handled with care, properly graded, and are red, juicy, and of medium size.

three grades

The grades for apples are as follows: Extra Fancy, Fancy, and "C" (or commercial). To qualify for any of these grades, apples must be mature, handpicked, clean, sound, smooth, well formed, and of the same variety and uniform size. The Regulations of the Agricultural Products Act clearly defines the amount of damage which will be tolerated for each of the above-mentioned grades; with respect to our chief varieties (such as McIntosh, Cortland, Fameuse — or Snow — and Wealthy) they also stipulate the minimum amounts of colour, namely: for Extra Fancy, 55% red or 40% solid red with 15% reddish; for Fancy, 30% red or 15% solid red with 15% reddish; for "C" grade, 15% reddish.

promotes sales

After the apples have been graded in conformity with the requirements of the legally established grades, they must be presented in clean and attractive packages on which is plainly shown the name of the product, the grade, the variety, the net weight, the name or names of the firm or the packer and his address and, in the case of a product coming from outside the province and repacked within the province, the name of the country or province of origin.

Proper grading of apples promotes their sale on the local market, establishes an excellent reputation abroad, and enables the grower to command higher prices and profits.

PROVINCE OF QUEBEC DEPARTMENT OF AGRICULTURE AND COLONIZATION ANIMAL PRODUCTION SERVICE AID FOR THE REARING OF SHEEP

With a view to encouraging the breeding and raising of sheep according to sound principles in regions which are particularly suitable for them, the Department of Agriculture and Colonization offers the assistance, herein-after described, for the organization of:

SHEEP BREEDING CENTRES (HALF-BRED SHEEP) and MARKET LAMB PRODUCERS' CLUBS

These centres and clubs may be organized on condition that:

- A. The authorization of the Director of the Animal Production Service be applied for and granted. Application for such authorization must be made each year before the first of July, by the County Agronome.
- B. The application be made on behalf of at least ten farmers of the same parish (or comparable area) each of whom is prepared: a) to establish on his farm, a large enough flock of sheep to be profitable under the existing system and conditions of farming; the flock to contain at least 15 ewes in 1962. a) These conditions may be slightly changed on the recommendation of the County Agronome and the Regional Inspector; b) to eliminate from his flock any ewes which may be judged unsuitable for breeding; c) to get his ewes bred by a registered ram; d) to provide a suitable building or quarters for his sheep; e) to castrate and dock his lambs when they are about 15 days old; f) to treat his sheep against parasites at least once a year; g) to sell or ship his wool through the Centre or Club.

FINANCIAL ASSISTANCE

The Department will provide up to twenty ewe lambs per member, at a nominal price of \$10 each:

- A. for the establishment of new flocks of at least 15 breeding ewes;
- B. to increase the size of the flock of a member after he has kept all his approved ewe lambs.
- C. In addition, the Department may provide each member, according to need as determined by the agronome and the authorized representative of the Animal Production Service, with a purebred ram of the appropriate breed, at a price of \$15, on condition that:
 1. Any person entrusted with the care of a ram shall fill in a written contract, undertaking to look after the animal well, and agree to exchange it for another one if this should prove necessary or advantageous;
 2. the rams be paid for, at the above-mentioned price, at the same time as the ewe lambs;
 3. the total sum in payment for all the ewe lambs and all the rams purchased by the Centre or Club shall be sent to Quebec together with the list of members, before the first of September;
 4. the cost of transport of the rams and breeding ewes, as far as a central unloading point, shall be paid by the Department.

SHEEP BREEDING CENTRES (HALF-BRED SHEEP)

The aim of these centres is to encourage the breeding and rearing of cross-bred ewes for future mating with rams of a breed to be decided by the Animal Production Service, with a view to the production of market lambs. The Department reserves the right to buy from members, ewe lambs (weighing 100 pounds or over, with good conformation and clean fleece) which it may require for breeding purposes; such purchases to be made in accordance with Montreal market prices and weight at the local loading point. Castrated lambs must be sold, or shipped to the abattoir, through the Centre.

MARKET LAMB PRODUCERS' CLUBS

The aim of these clubs is to encourage the use of better cross-matings, with a view to the profitable production of market lambs.

The Department will provide half-bred ewe lambs which must be mated with purebred rams of a breed specified by the Animal Production Service. All male lambs resulting from such matings must be castrated.

Every member must undertake to sell or ship all his lambs through the Club, and to provide the Agronome or authorized representative of the Animal Production Service with a report giving details of the sale of each of his lambs and of the wool produced by his flock. Each year, before the first of August, the members of the Club must choose themselves a sales committee consisting of 3 to 5 members, authorized to act on behalf of all the members of the Club, in connection with the sale or shipment of market lambs.

These regulations will remain in force until further notice.

The Deputy Minister of Agriculture and Colonization.
ERNEST MERCIER

THE DESTRUCTION OF WEEDS IN LAWNS

Herbicide treatment for the destruction of weeds is the final touch needed for the proper care of lawns, according to Mr. Alexandre Dion of the Quebec Department of Agriculture. The solution of weed-killer should be applied to the whole surface of the lawn by means of a low pressure sprayer. This should be done before the weeds come into flower, and on a calm day when there is no wind to carry harmful fumes or droplets onto ornamental plants.

Newly made lawns should not be treated during the year they are sown: they should be a year or more old before treatment, so that the roots of the sown plants will be well developed and firmly established.

Broad-leaved weeds, such as plantain, dandelions, etc., can be destroyed with 2-4-D. Against chickweed, 2,4-5-TP or CMPP is used. In each case, the instructions for use printed on the container should be followed.

For the destruction of crab grass, PMA may be applied, at the rate of 2 to 2½ ounces of a 10% commercial preparation in enough water to cover 1000 square feet of lawn. This treatment should be applied at the beginning of the season when the seeds of crab-grass are germinating. Two further treatments are necessary, seven to fourteen days apart.

Potassium cyanate may also be used against crab-grass at the rate of 3 ounces in 8 to 10 gallons of water per 1000 square feet, applied when the crab-grass plants are young, before the appearance of the stems which bear the flowers. Two further treatments of potassium cyanate will be necessary, at intervals of ten to twenty days. This herbicide can also be applied in powdered form, at the rate of 6 ounces per 1000 square feet of surface.

A new product, ZYTRON, is also recommended against crab-grass. It may be used in liquid or in granular form, the latter being the more effective. ZYTRON should be applied before the crab-grass appears, at the rate of 15 pounds of the active product per acre of surface.

This page supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.

THE REARING OF PULLETS IN COLD WEATHER

In view of the low prices now fetched by broilers and the fairly high prices which have prevailed for eggs during recent months, it is likely that greater numbers of pullets will be reared this winter.

The raising of pullets during cold weather necessarily calls for special care. Mr. André Lemay of the Provincial Poultry Division gives the following advice about heating and ventilation.

It is essential to provide the birds with uninterrupted artificial heating during the cold season. The heat should be adequate to ensure the comfort of the flock not only under the brooder but throughout the house. This will do much to stop the birds from crowding together and piling on top of one another, and to prevent disease and, at the same time, encourage even growth. A satisfactory degree of heat results in saving of feed. Heat also aids ventilation by eliminating unhealthy dampness and promoting better circulation of air in the building.

It is better for heat to be evenly distributed than to be radiated from a small source. It will then be more uniform and keep walls and litter drier. The building should be well insulated so that heat will be retained. Pullets need plenty of air to maintain their vital activities during growth. The air has eventually to come from outside, but it should be warmed before it reaches the birds. This "air-conditioning" is one of the chief factors of success in the rearing of pullets.

The feeding of birds in confinement must be well balanced so that they are provided with all food constituents, especially vitamins. At the same time, their development and maturity must not be hastened at the expense of their health. The use of a vitamin supplement ensures a considerable degree of protection against various troubles. The poultryman should not be afraid of making use of grains, nor even of following a programme of restricted feeding, in order to delay the onset of laying until the proper time.

Artificial lighting is used to give the birds a normal period of healthy activity of about 14 hours a day. Indiscriminate and excessive lighting should be avoided,

however, because it causes sudden and unexpected increases in the rate of growth. It is wise to provide the birds with a dim light at night: this will help to prevent them from crowding. They should also be provided with perches while they are growing, since this likewise contributes to housing without crowding at night. Litter usually keeps dry in a brooder house if the birds are allowed enough floor space, but, as soon as it becomes too damp to be healthy, the moist patches should be removed and replaced with dry litter.

The rearing of pullets calls for greater care and attention in cold weather than it does in spring and summer. However, the extra trouble is generally repaid by early egg production during the summer.

THE WINTERING OF BEES

Wintering is an important aspect of apiculture in the Province of Quebec. Colonies which the beekeeper has succeeded in bringing through the winter in good condition provide fairly strong populations capable of producing plenty of young workers to gather the coming season's honey crop. In order to survive the winter well, each hive should have at least 40 pounds of food, in the form of honey or of syrup made from granulated sugar (cane or beet).

Mr. R. Brasseur of the Provincial Apiculture Division gives the following directions for the preparation of the syrup. Add boiling water to granulated sugar, at the rate of 1 part of water to 2 parts of sugar, and stir vigorously until all the crystals of sugar have disappeared (in order to prevent recrystallization). In districts where there are cases of American foulbrood, add 1 tablet of sulfadiazine per gallon of syrup.

Colonies should be prepared for overwintering at the end of September. At this time, it is also advisable in many cases to unite two colonies, one of them weak, and the other of average strength. The queen which is considered to be the less desirable is destroyed and the two colonies are united by one of the usual methods, with newspaper or ammonium nitrate.

As far as possible, the beekeeper should avoid disturbing the brood-nest when moving frames.

SEEDS: TINY DORMANT PLANTS

The reason why seeds fail to sprout or, having germinated, fail to produce healthy young plants is always of considerable interest. Unsuccessful sowings are, unfortunately, only too common, and for several reasons.

Mr. E. Lavallée of the Quebec Department of Agriculture asks us to remember that a seed is a tiny, dormant plant. It consists of an embryo or germ together with its reserves of nourishment, enclosed in a protective coat. Germination is simply the growth of the embryo to form a new plant of the same species. Seeds are thus living things, very delicate and very vulnerable to conditions which are even slightly unfavourable to their development.

When seeds germinate poorly or not at all, the grower should begin by asking himself whether the seed was good, since seeds which are too old or did not ripen properly, or have been damaged in threshing, or spoilt by disease or insects, are likely to have only poor powers of germination. With such seed, one is doomed to failure from the very beginning.

still failures

But even when healthy seed with strong powers of germination is used, there remain powerful causes of failure, such as damping-off, collar-rot and root-rot. These seedling diseases are caused by microscopic soil fungi of the mould type, for example: *Pythium*, *Rhizoctonia*, *Fusarium*, *Sclerotinia* and others. The destructiveness of these moulds depends on several factors: the nature of the soil, temperature, humidity and light (to mention only the more important). Compost which is too rich in organic matter, such as manure or peat, favours seedling diseases. Although peat and well-rotted manure are valuable ingredients of good compost, they should not exceed 25 per cent of it. Vermiculite or Terra-lite has many of the properties of peat or organic soil without its defects and many gardeners use it with success.

Sunlight plays an important part in the life of the plant: it is

necessary for the formation of the green colouring matter in the leaves. In dull weather, plants tend to turn yellowish, lanky and feeble, and susceptible to rot. It is therefore important to allow as much light as possible to penetrate into greenhouses and frames, by locating and orienting them favourably and keeping the panes of glass clean, especially in dull weather.

Excessive and prolonged humidity, both of the soil and of the air surrounding the plants, should be guarded against, particularly at night or during dark days. For this reason, the grower should avoid leaving dense clumps of seedlings. One way to accomplish this is by sowing the seeds in rows rather than broadcast. If the soil is cold at the time of sowing, the first watering should be delayed for two or three days. Watering should be done only when necessary and in the morning rather than late in the afternoon or in the evening. One good watering is better than frequent sprinklings. The greenhouse or frames should be given as much ventilation as possible, so as to remove damp, moisture-laden air from around the young plants: the stronger the sun, the more ventilation should be allowed. When the air around the plants in a greenhouse cools quickly, moisture condenses. In order to get rid of this moisture, the heating should be increased and a little ventilation should be allowed.

All these precautions may not be enough to prevent damping-off, especially in the case of early sowings in February and March. Certain other sanitary measures may also be advisable or necessary, for instance: seed treatments, disinfection of seed-beds, special sprayings or waterings with fungicides when the seedlings emerge, and again later.

THE CARE AND FEEDING OF NEWLY FRESHENED DAIRY COWS

It goes without saying that a cow which is in calf should be given all the care necessary to ensure normal calving. But it should also be remembered that she needs considerable attention at the beginning of her lactation period to protect her from certain diseases and prevent a drop in her milk production.

During this period, that is, from calving until two or even three weeks afterwards, the dairy cow is in a weakened condition and malnutrition and neglect may lead to some shocking surprises for the dairyman. Mr. Gérald Rousseau of the Quebec Department of Agriculture gives the following advice on care after calving:

In the first place, the cow should be left in a box-stall for at least two or three days, if possible. She must be protected from draughts and, if the barn is too cool, it would be a good idea to cover her with a blanket. It is essential that the chill be taken off cold water before it is given her. Her feed should be light and sparing and, later, it should be increased gradually.

She should not be milked dry during the first two or three days following calving. If the udder is very much inflamed, it is better to milk her three times a day until the inflammation has disappeared sufficiently.

laxatives

It is also important to watch out for constipation. If the cow is constipated, an attempt should first be made to relieve the condition with laxative feeds, before purgatives are resorted to. Bran, linseed cake, and molasses, added to the ration, are recommended as laxatives. At the beginning of the lactation period, only a little meal should be fed and this should be laxative and have a low protein content. When everything is going well, the amount should be increased, but it is well to remember that the cow must not receive her full ration until the inflammation of the udder has disappeared. In practice, two or three weeks should pass before she is getting her normal ration of concentrates.

Diseases such as milk fever, mastitis, acetoneemia, etc., may turn up during the early weeks following calving. It is therefore very important for the dairyman to be able to recognize the symptoms so that he can notify the veterinarian right at the start because, if they are not treated some of these disorders may prove fatal and others have a disastrous effect on milk yield throughout the entire lactation period.

Finally, it should be remembered that it is at the beginning of her lactation that the cow must be trained to good milking habits.

CONTROL OF LATE BLIGHT

One of the most destructive potato diseases is late blight. This disease attacks the vines, causing them to rot, with resultant reduction in yield. In fact, it may also later cause rotting of the tubers.

Since late blight develops and spreads rapidly in warm damp weather, the Field Crops Branch, Ontario Department of Agriculture, points out that the only control measure—and a measure that must be taken in ample time to control the disease—is the proper use of fungicides. This involves covering the potato plant with a protective layer to prevent blight spores from development. Certain varieties are resistant to some strains of blight, but none are immune to the disease. As a result, spraying and dusting is necessary.

The most commonly-used materials are the organic compounds which give good control, if properly applied every seven to ten days. Bordeaux is still popular and gives excellent control of blight.

Potato growers who want assistance in this matter of blight control should get in touch with their local agricultural representative, or with their nearest office of the Department of Agriculture. Information on spraying and dusting which will result in the control of late blight and the protection of their potato crop is available.

TIMELY TIPS

Recently a paper carried the story of a 6 year old boy who was killed when he fell off a tractor, and was run over by the trailing implement. Accidents of this type happen all too frequently, warns Hal Wright, farm safety specialist with the Ontario Department of Agriculture. Don't kill a child through carelessness.

Feeding grain according to a cow's production isn't new thinking, but it is still a major problem with a lot of dairymen. Livestock specialists say that some dairymen are still overfeeding dry cows and underfeeding high producers.

Don't use Phenyl mercury compounds to control turf diseases and crabgrass in Merion blue grass lawns, warns Professor C.B. Kelly, of the Ontario Agricultural College's Botany Department. Phenyl mercury acetate or PMA compounds have been known to damage Merion blue grass.

CANADA'S CATTLE POPULATION ALL-TIME HIGH

The number of cattle and calves on Canadian farms at June 1, 1962, was estimated at 12.1 million head, a record high. According to the Dominion Bureau of Statistics annual livestock population survey, cattle numbers were up 1.2% over the previous high of 11.9 million head at June 1, 1961.

Beef cows, steers, and calves increased from numbers reported last year, while other classes dropped slightly. Beef cows increased 3.3% in total (6% in the East and 3% in the West). Steers increased 4.5%. Both beef heifer and steer numbers were reduced in the West as a result of last year's low feed crop. There were almost 2% more calves at June 1st this year than last year.

The number of milk cows dropped 1% to just below 3 million head, with most of the decline taking place in the West.

Sheep and lamb population decreased some 7% to 1.4 million head. The larger decrease was in Western Canada.

Horses continue to decline and at June 1, this year, totalled only 477,200 head which is a drop of over 6% during the previous 12 months.

CROP CONDITIONS ACROSS CANADA

Haying is well underway in the Maritimes after a temporary hold-up due to cool, wet weather in July. Pastures are excellent and grain crops are developing very well. In Quebec, haying has been retarded by unfavourable weather, but grain crops and pastures have benefitted from the wet weather. Grain harvesting operations, just starting in the Montreal area indicate good yields.

Ontario pastures which were quite burnt in the middle of July have been helped considerably by recent rains. Fall wheat harvesting is all but finished, with the oat harvest well advanced in Western parts of the province. Both fall wheat and oat yields have been normal to above average. The hay crop in some areas was poorer than usual, but the large carryover from last year should make the total supply adequate for the coming winter.

Recent rains in the Prairies have improved crop prospects in most districts. The crop outlook is generally good in Manitoba, quite favourable in most parts of Saskatchewan, and from poor to excellent in Alberta. There seems to be little likelihood that rust will cause extensive damage to either wheat or oats this year.

No Place For Goldenrod

Once considered to be the principal cause of hay fever, goldenrod has long since been acquitted of this crime in favor of the less picturesque ragweed. Both plants shed pollen profusely and both are capable of setting up nasal irritations but tests have proven that goldenrod pollen is heavy and will travel only a short distance, whereas ragweed pollen is light and buoyant and can be carried considerable distances by wind.

There are hundreds of species of goldenrod which are at home almost everywhere in North America, whether it be in the fields, swamps, mountains or roadsides. It is perennial in growth and spreads by both root stocks and seeds. Different species range from a few inches to several feet in height but all burst into bloom in late summer or early fall. There are myriads of small yellow blossoms arranged in wand-like clusters.

Goldenrod is no problem in crop land since it cannot survive cultivation, says the Field Crops Branch of the Ontario Department of Agriculture. Along roadsides or in rough pastures or waste land, goldenrod is likely to take over and crowd out other more desirable plants. Clipping or mowing does little to control the weed in these locations. It just sends out more root-stocks and new leafy flowering stems. It is not palatable to livestock so pasturing does not keep it down.

Goldenrod can be controlled with 2, 4-D sprays. This weed killer, applied once or twice a year in the early stages of growth, for a couple of years will make goldenrod disappear like magic. On rough pasture land or along roadsides such a treatment will get rid of a lot of other more pernicious weeds as well.

In spite of its autumn beauty, goldenrod has no place on productive land or on roadsides.

HOW TO KEEP THE LITTER DRY IN THE POULTRY HOUSE

DAMP litter in poultry buildings can lead to many troubles, such as diseases, retarded development and abnormal laying. However, it is easy to maintain the litter in good condition by choosing the right kind of materials for it, keeping a satisfactory depth and ensuring properly regulated ventilation.

Mr. André Lemay of the Quebec Department of Agriculture recommends the use of shavings, peat or chopper straw. At the start, this litter should be about four inches deep. Fresh material should be added to it from time to time until, by the middle of the laying period, it is from eight inches to a foot in depth. This method encourages bacterial action, thus producing enough heat to cause evaporation of moisture from the litter and to prevent condensation of moisture from the air onto cold litter.

half-fill fountains

Overcrowding of the flock must of course be avoided in order to keep the litter dry. Drinking fountains should only be half filled and they should be set so that the water is not lower than about the level of the birds' backs. It is very important to distribute feed hoppers and drinking fountains uniformly over all the available floor space, so that the droppings will be more evenly spread around. The litter near drinking fountains and in other wet spots should be turned frequently so as to allow the air to penetrate it. Some poultrymen scatter hydrated lime in damp pens to absorb excess moisture. Patches of litter which have become soaked with moisture or caked and compacted should be removed and replaced with fresh litter.

good ventilation

The circulation of air by means of a functioning ventilation system plays an important part in keeping litter in satisfactory condition. This is the reason why some systems of ventilation allow for partial circulation inside the poultry house as well as for the removal of foul air.

The condition of the litter plays an appreciable part in productivity and profit. Because of this, poultrymen are advised to pay careful attention to this aspect of management, especially during the winter months.

SPECIALIZATION OF PULLETS

THE specialization which has brought about important changes in certain well-known branches of poultry production and marketing, is now invading a new field, namely pullet raising.

In some regions, egg producers are showing a tendency to have their pullets raised by specialists. Thus, they interest themselves exclusively in egg production and buy their pullets when they are fully developed.

According to Mr. Roger Paiement, agronome of the Quebec Department of Agriculture, this method is suitable even for those who produce eggs on a small scale. In buying started pullets, egg producers save rearing troubles and can take better care of their laying flock. Moreover, it allows them to keep more laying birds and use their buildings all the year round for egg production. Poultrymen have also found that contamination by many serious diseases is avoided when older birds are kept away from growing pullets. It is also easier to vaccinate a flock when all the birds are of the same age.

The poultryman's ability is one of the many factors which control the development and rate of growth of pullets. These are generally of a better quality when raised by an experienced specialist, in adequate buildings properly heated and ventilated. When pullets of the same age are reared apart from other birds it is easier to feed them properly. This system of pullet raising by specialists, besides providing birds of recognized hereditary value, also ensures well-planned feeding, good development and profitable egg production.

Pullets are usually delivered to poultrymen when they are sixteen weeks old, so as to reduce stress caused by a change of surroundings when they are starting to lay. Prices vary with different regions and according to market requirements. As a general rule, it is more economical for egg producers to buy started pullets than to raise them for themselves. In this manner, they avoid many risks, including losses during the growing

stage. In addition, better use can be made of buildings and labour.

Mr. Paiement advises the egg producer to choose his supplier carefully and to examine his flock. This new speciality may be of particular interest to broiler producers who, for special reasons, would like to change their present type of production. Before producing started pullets on a large scale, it is wise to consult egg producers and incubator operators as to market possibilities for eggs. Producers of started pullets will succeed as long as they offer good quality birds and get satisfactory prices for them.

REDUCE BLIGHT

To reduce the spread of anthracnose and spur blight diseases to the new raspberry canes, cut out the old canes as soon as picking is finished and burn them, says Professor C. B. Kelly, Botanist at the Ontario Agricultural College. Spray the new canes immediately with a fungicide such as ferbam, fixed copper plus spray lime, or bordeaux mixture. If the pruning is likely to be delayed, get at the spraying first. Spores of the fungi that cause these diseases are distributed during rains.

Seventy six per cent (76%) ferbam WP 2 lbs. per 100 gallon water; fixed copper at a rate to give 1½ lb. actual copper per 100 gallons with hydrated spray lime 4 lbs. per 100 gallons; or bordeaux mixture 5-5100 will give good protection against further infections on new canes. Apply about 250 to 300 gallons of spray per acre in a mature planting.

Professor Kelly states that the fungicides do not cure canes that are infected already. They prevent additional infections.

The recent rains have been favorable for cherry leaf spot on sour and sweet cherries. As soon as harvest is done, the trees should be sprayed to prevent further spread of this fungus disease, reports Professor C. B. Kelly, of the Ontario Agricultural College's Botany Department.

Such fungicides as fixed copper, captan, dodine, glyodin, antidione, and ferbam provide protection against further infections. Follow the directions on the containers when mixing the spray.

In many sour cherry orchards it would be well to repeat the spray application two weeks later. Do not forget to spray the young non-bearing cherries as well.

This page supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.

The Country Lane

POETRY

There's a poem in each gift from God,
In the rivers, forests and trees,
In the angry storm-tossed waters
And in summertime's softest breeze.
There's a poem in wafted perfume,
From a rose in a garden small;
We find our lines of poetry,
In a torrential waterfall.

In the snow that comes in winter,
A white blanket covering the ground;
In ice on the limbs that sparkle,
On the trunks of the trees so round.
In filigreed frost on windows,
Interwoven on a glass pane;
In the shadows in the springtime,
When the earth is watered by rain.

In the love of man for maiden,
In a mother's tender, sweet smile;
In voices coming through the air,
As we turn on the TV dial.
Yes, life is full of poetry,
And alone we need never be,
If we attune our ears and eyes,
To the things that we hear and see.

— Ethel KETTYLE,
Brownsburg, P.Q.

If I could press the essence of my thought
Into one tiny drop of wisdom learned
Beyond the volumes men have known before,
I would not feel this life was lived for naught,
Nor fair Earth's joys and pleasant hours unearned—
Nor seek a richer prize — nor crave for more.
In this deep inner sense we call the soul,
A man may sink, cleansed of the trivial;
For some brief instant stand upon the verge
Of prodigious waking, the urgent role
He plays upon this speck terrestrial
Almost revealed. But then—the restless surge
Of mundane happenings engulf the man
And sweep him back to where the dream began.

— G. P. HAWKE,
Farnham, P.Q.

OLD MIKE

A "has been" they called him, though not to his face;
And somehow he knew, but felt no disgrace.
Indeed 'twas an honour for sure it implied
He had been a person on whom they'd relied.

What if time had faded his strength or his power,
He'd always recall he had had his hour,
And nod as he stated with smile serene:
"I'm thankful I'm not a 'might have been'."

— Olive Sanborn RUBENS,
Montreal, P.Q.



TO WORRY IS FOLLY

If you would sleep well,
Think only of moonbeams,
Pale gold and mystic,
Perfumed with flowers.

Think of their softness,
And let their witchery
Lull to forgetfulness,
Those weary hours.

Light as a thistledown,
Floating and floating,
They'll bear you sway
On the wings of content,

Blindfold by sleepiness,
Heedless and trusting,
Filled with soft languor,
And fully content.

— Janet Pollock GRAHAM,
Grenville, P.Q.

PRAYER OF A HOUSEWIFE

Jesus, teach me how to be
Proud of my simplicity.

Sweep the floors, wash the clothes,
Gather for each vase a rose.

Iron and mend a tiny frock,
Keeping one eye on the clock.

Always having time kept free
For childish questions asked of me.

Grant me wisdom Mary had
When she taught her little lad.

— C. C. COBLENTZ,
Observer.

PALS

When I see a boy who hasn't a dog
Or a dog that hasn't a boy—
I think of the lot they are missing
Of frolic and genuine joy.
Some parents think dogs
Are a nuisance
Just something to bark and annoy,
They can't know how badly
A boy needs a dog
Or how sadly a dog needs a boy.

— Mae Morton MORRIS
— From "Your Dog".

Builders of our Country

The ADAMS DYNASTY

from a paper by Gerald P. Hawke, Farnham, delivered to the Missisquoi Community School.

A sketch of the Adams family, and its role in the building of our country. While not of sufficient significance to rate a place in our national historical accounts, the role of families such as the Adams has an important place in the founding of our towns and cities. Below is a brief account of the family which gave its name to Adamsville.

Abel Adams was born in the year 1813 in the town of Newbury, Vermont, son of Abel Adams and his wife Sally Stone. In 1816, when he was three years old, the family moved to Canada, his father acquiring a farm and a store at the Pinnacle in St. Armand. In 1823, the family moved to Pigeon Hill where Abel opened a store and acquired land, continuing to prosper both as a farmer and as a trader. They were a family of traders, for three sons followed the pattern which their father Abel had set. John established himself in Swanton, Nelson in Stanbridge, while George, at the age of 25 years, took over the management of his father's business in St. Armand.

The first indication of the interest of George Adams in Farnham Township is his purchase from John Truax of Farnham, of a mortgage on a two story building in the 3rd Range of Lots in the Township of Farnham. This was at a spot on the South branch of the Yamaska River, known to some oldtimers as Farndon. The owner of the building was Leonard Nile, a blacksmith.

Next, in the handwriting of George Adams himself, we have a Quit Claim Deed from John Truax, "his heirs and assigns unto the said George Adams all of his right claim interest and demands what-

soever to a saw mill and house he now occupies situated on the south part of Lot Number thirty-one in the third Range of the Township of Farnham in the County of Shefford and give unto the said George Adams possession of lot, mill, house and premises this day herein mentioned and use the same. This done and passed at the store of the said George Adams in St. Armand in the presence of John J. Hawk, Henry Falls, and Abram Thompson, in the year of our Lord One Thousand eight hundred and forty five, the sixth day of November."

In December of the year 1848, he bought from the British American Land Company the south half of the north half of Lot No. 15 in the 4th Range. This comprised land on the Eastside of the present Main Street in Adamsville.

In September of 1849, the year of his father's death, he bought from Charles L. Powell, yeoman, of Farnham, "all that certain lot of land known as Lot Number Sixteen in fourth range in the Township of Farnham, and saw mill thereon erected." This deed also is in the handwriting of George Adams, signed by him and Charles Powell in the presence of witnesses, Chas. C. Abell, and Charles E. Woodbury.

These acquisitions were the bas-

is from which the village was developed. In 1850 he built a store and a grist mill, though his first wife, Jane died in May of this same year.

Within two years he had taken a second spouse, Laura Rykerd, and moved his family to Adamsville. Laura quickly gave him three daughters, but death as quickly took them from him. Jane, born in 1853, and Emily in 1854, both died in May of 1855. Elizabeth, born in 1857, lived four years dying in 1861. Perhaps these family tragedies drove him to such absorption in the business of developing his rural empire. He acquired land at quite an amazing rate, though, as nearly as one can tell from the record, he was not a hard man and never took unfair advantage of those with whom he dealt. In addition to being a store keeper and a lumberman and mill owner, he served as the banker of the community. He was a farmer as well, and a Justice of the Peace, and the first Post Master of his village. By 1881, Belden's Atlas listed his land holdings as 2,370 acres, mostly in Farnham Township.

He built and gave to his community a Protestant Church, an academy, and a town hall. He gave the land for a Protestant Cemetery.

His eldest son, William, was a grave disappointment to him. A

quotation from his Last Will and Testament tells the reason why. "... and further, in case my said son William should continue in his deplorable habit of using intoxicating liquors to excess and squandering his substance or part of it in this way, I hereby authorize my said Executor and residuary legatee whenever he shall see or hear of such conduct in his brother, to take the said landed estates away from him into his own possession and control them himself ..."

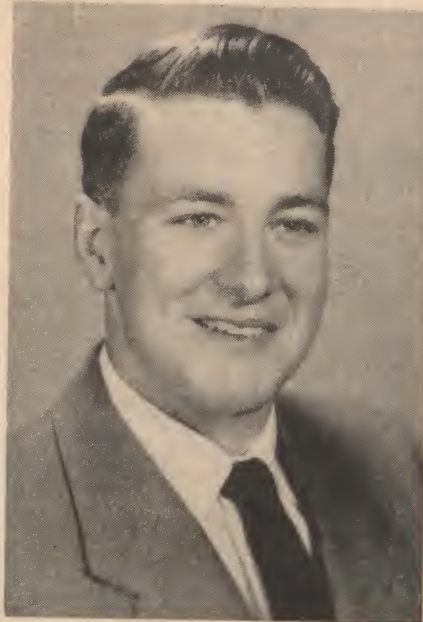
George Adams combined in himself the qualities of the dreamer and the builder. He could not look upon a piece of waste land without testing its potentialities, and, if he found it good, adding it like a building stone to the structure that was his life's work. It was unfortunate that these two admirable qualities should have been divorced in his sons. William was a dreamer without his father's fortitude and administrative skill. George Abel was a sound administrator without his father's vision.

Perhaps it was inevitable that William should be crushed by the driving spirit of the father whom he was unable to immitate. As a youth he was considered promising. He studied to be a Public Land Surveyor, and we find among his father's papers a Proces Verbal of Survey of 3 acres of land for the Roman Catholic Church in Adamsville, signed by him as a Student Land Surveyor. In 1871, William assumed management of his father's "landed estate" in St. Armand. He continued at this for 13 years, but evidently not to his father's satisfaction or his own, as evidenced by the extract just quoted from his father's will, dated in 1879. By 1884 they had reached an open break. William, for the sum of \$75 received from his father, renounced all his claims to the property in St. Armand and went to Alberta.

In the next year, 1885, George died and George Abel succeeded him in the management of the business affairs of the family. Perhaps it was then that William returned to Adamsville. Both he and his wife, Harriet Missouri Hall, are buried in the graveyard there.

George Abel and his wife, Sarah V. Douglas, had four children, Laura Jane, Byron Abel, George James, and Ernestine Mary. The first three never married. Ernestine married Dr. Albie Skeels but they had no children. Thus ends the dynasty.

College News



DR. R. O. HAWES

L. E. Lyold, Chairman, Department of Animal Science, has announced that Dr. Robert O. Hawes has joined the department as Assistant Professor of Animal Science. His area of specialization is poultry breeding and genetics. Dr. Hawes was born in Bangor, Maine. He attended public and high schools in Hampden, and received a B.Sc. degree in Poultry Husbandry from the University of Maine in 1956. In 1958 he graduated from the University of Massachusetts with an M.Sc. degree, and has recently completed his Ph.D. degree at the Pennsylvania State University.

Dr. and Mrs. Hawes have arrived on the campus, and with their two sons aged three and one, are residing at No. 1 Maple Avenue.

National Science Foundation Posting

It is of interest to note that Dr. Eugene Donefer of the Department of Animal Science has been awarded a National Science Foundation Postdoctoral Fellowship for a 12-month study and research program at the Institute of Animal Nutrition of the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland. He will be working with Dr. A. F.

Schürch, who will be remembered by many as a Research Fellow in the Department of Nutrition at the Macdonald College during the early 1950's. Dr. Donefer's departmental responsibilities will be assumed by Mr. D. A. Christensen for the coming year.

Dr. Donefer and his family left from New York City on August 30th, and we will look forward to their return after a successful year in Switzerland.

W. C. Shipley joins staff as Secretary-Registrar

Mr. W. C. Shipley has joined the staff as Secretary-Registrar and will be in charge of the offices of both the College Secretary and the Registrar.

Mr. Shipley is a graduate of Macdonald in Agricultural Economics has an M.A. in Economics and comes to the college after extensive experience in both Government Service and industry. He knows the traditions of the College and has served us well in the past, having been President of the Gold Key Society as an undergraduate. President of the Macdonald Branch of the Graduate Society, and served most efficiently as Chairman of the Committee which organized the very successful Semi-Centennial Celebrations in 1955.

Mr. Shipley's charming wife, Vivian, is also a graduate of Macdonald, B.Sc. (H.Ec.) and they have three children. They will continue to live at Bedford until late fall, when they will move to 15 Maple Avenue.

Buy . .

Sell . .

Trade . .

Beginning with the October issue The Macdonald Farm Journal will feature a special classified advertising section.

If you have anything to buy, sell or exchange, you will find the pages of the Macdonald Farm Journal an economical way to do business. Rates are just .20¢ per word. Three insertions, deduct 5%, six insertions deduct 10%. A further reduction of 5% if cheque accompanies order. Send your classified to Macdonald Farm Journal, Beaconsfield, Que.



The Better Impulse

NEWS AND VIEWS OF THE
WOMEN'S INSTITUTES OF QUEBEC



Killers with a Permit

ONCE MORE the papers will be carrying news of "Accidents with Firearms" in the bush. Having lived with guns for more years than I care to remember it is my opinion that there is no such thing as "accidents" with firearms — only stupidity. A few basic rules in the handling of these killers is all that is needed to make your hunting trip a safe and a sane one.

by **Bob Atchison, Lachute
Watchman**

Pick the gun your type of shooting demands, and not the one the clerk in some store tells you to buy. More hunters today have overpowered guns than ever before. Take the time and trouble to consult someone who knows. Far too many killings occur through this than is realized. The most glaring example of this is the selling of War Surplus high-powered rifles in Chain Stores, etc. These can be bought for merely a few dollars and anyone can purchase them, without any restrictions whatsoever. The same applies to the ammunition too — great for a kid to get his hands on. Unfortunately, the dollar has become more powerful than life itself.

Select proper weapon for your hunting requirements

A new gun should be taken to a range or club and tried out BEFORE it is used in the bush. Sights do become out of focus resulting in wild shooting. Remember, a wild shot from our present-day guns can result in death up to three miles, and more, away.

It is now up to you as to what kind of relations you are going to have with the local gentry in your shooting area. Believe me, they don't want, or like, a bunch of Gun Happy punks running around loose in the bush. Ask for permission to hunt in the area you are in. Find out about livestock that may be in this area. In a good number of



The proper way to handle a gun while crossing through a fence is shown in the photo. For those who would rather follow their own rules see top of next page.

cases they are running loose. The same applies to buildings in the area — steer clear of them. No family likes to be notified Hunters are in the area by having shots come through their windows.

Leave fences alone, they are not for making fires. Close gates and don't leave litter around.

Never point a gun at anything, unless you are going to shoot it. Before pulling the trigger, take another look.

Treat any gun with respect, it will never harm you itself — the human element is always needed. Use a little thought in the bush and you will be safe and WELCOME.

Dress for your protection — bright colours are necessary and needed. Forget the light browns and so on.

Never travel alone in the bush, unless you are looking for trouble.

Lost? Don't panic. You won't starve as there is a lot of good food just waiting for you to use.

Never travel the bush at night. It's a good way to end up with a broken leg. Bed down for the night and you'll be O.K. If you don't know how to do this, you shouldn't be out in the bush.

Last, but not least, is the known fact — GUNS CANNOT FIRE THEMSELVES. You take it from there.

For Those Who Don't Like Rules

Now for those people who think these rules for safety in the bush do not apply to them—

Shoot anything that moves in the bush — it may be a human.

If you hear a noise, shoot. Ask questions later, if you can.

Carry loaded guns in the car. It will be fun if they go off while travelling.

Fool around with guns. It is surprising what shells can be made to fit other guns.

Shoot at anything white — could be a deer.

Drag your gun through fences — it may hit the fellow behind you.

Sure, use your gun as a walking stick — it may get plugged up and blow someone's head off.

Shoot across roads — maybe a car will come along.

Shoot at mailboxes and the insulators on power and phone lines — it is good practise. After a few shots it is hard to miss.

Invite your inlaws to go with you — make sure they wear some nice light brown colours. Good results can be obtained from this.

Don't worry too much about the law — they are very lenient in Quebec.

A group around a fire? Throw some shells into the fire and see the fun!

Never ask permission to hunt. A couple of shots through the window will let the owners know that you are around — saves a lot of time.

Try for cows instead of deer — much easier to hunt, and certainly better eating.

Never put out your fires — it will clean up the bush for you and make walking easier.

Don't bother with a compass. After all, think of the work you give the local yokels. Then on top of this tell them you weren't lost — good for a laugh.

This is my own little gimmick and one that pays off. Make yourself a tree snare with fine wire. Anyone running down a deer trail will be sure to get snapped into the air — a clean broken neck, no mess.

Let someone else carry the deer. Be sure that it is on his back with the deer's head draped over his —

good results can be had from this.

Duck shooting is a sport all its own and has a few do's for you.

If you are in a boat or in a blind, always carry your gun cocked. If you drop it, see that it points up. If it is pointing down, it may blow a hole in the boat. You could get your feet wet and this could cause blisters when you go looking for a sheriff or a doctor — very hard on you!

Never go by the old rule of shooting turn and turn about. Bang away at everything and cross shooting is real fun — maybe your pal will get his eyebrows singed — if he is lucky.

Shoot at every clump or thicket — there may be a duck around.

Never read the game laws — they don't apply to you as you know it all. Besides, the game you are after (Human) is never out of season.

You may have heard of some of these tips, others do, but I do hope they help you to be stupid enough to get yourself shot. The more humans killed, the safer the wildlife — this I like.

Quebec Hereford Association Meeting

On August 11th-12th, in a bold and imaginative move, the Quebec Hereford Association carried their promotion efforts into the heart of Quebec's dairy country. By staging their annual summer field day at St. Hyacinthe and St. Pie de Bagot they served notice that they were not satisfied to stay in the Eastern Townships and the Pontiac county of Western Quebec, but were hoping to interest the dairymen of central Quebec in their good whiteface beef cattle.

To do this they added a new dimension to field days by bringing a busload of farmers and interested agriculturists from the Ottawa Valley to St. Hyacinthe and staging a banquet in that city. Among the guests who spoke briefly were four agricultural attaches, Fred Rossiter of the U.S. Embassy, Charles Wake of U.K. High Commissioner's Office, J. C. Wilms of the Netherlands Embassy, and L. I. Madsen of the Danish Embassy.

But the most popular speaker of the evening was Pierre Labrecque,

Provincial Livestock Commissioner, who announced that the Department of Agriculture was enlarging their policy of assistance for beef cattle raising.

The counties of St. Hyacinthe and Bagot are in the heart of the heavy milk producing areas of central Quebec, but Lionel Langevin, at St. Pie de Bagot, had some Herefords, and he was the host of the field day on the Saturday. Bolstered by animals neighboring herds and from the Eastern Townships four classes were judged during the afternoon, with Don McMillan of Cookshire, and Club Secretary J. C. Tanner of Windsor Mills in charge.

In spite of intermittent showers more than 100 people attended the field day, and heard R. K. Bennett, Chief Livestock Marketing Officer from Ottawa assure them of an increasing market for their Beef, because the population on this continent is increasing faster than the supply of meat animals. This is O. R. Evans reporting from Montreal.

FOOD FALLACIES

(continued from page 6)

to ensure proper disposal of wastes from the body. Only in certain cases will the doctor suggest a water restriction.

The statement that toast contains fewer calories than bread is also false since the only material lost from the bread during toasting is water, which of course, contains no calories.

The last fallacy in the list, suggesting that a person on a reducing diet should skip breakfast, is another mistaken idea. Such a routine generally leads to an inadequate diet for it is the breakfast meal which provides so many of the necessary nutrients required to keep the person healthy and active while they are losing weight.

The fight against food fallacies is difficult but our best method of combatting them is to practice good nutrition habits. If we use Canada's Food Guide as a basis for our daily diet, whether we are reducing, trying to gain weight or attempting to maintain our status quo, we are assured of receiving the best nutritional value our money can buy.

THE MONTH WITH THE W.I.

PONTIAC:

Beechgrove entertained the County president and secretary. Salted nuts are to be sold, with proceeds going to a fund to assist retarded children. Mr. Ira Merrifield gave an interesting talk on the growing and showing of glads. He showed how to cull glads and how to know the diseased ones. **Clarendon** held a spelling contest, the winner being Mrs. James Tracy. A donation was given to a student attending the United Nations Seminar at Macdonald College. **Elmside** enjoyed a talk by Mrs. Dixon of the "Equity" on Publicity. Tips were given on how to make minutes more interesting for the local paper. **Fort Coulonge** heard an address by Mrs. Lawson Corrigan, Provincial convener of Citizenship. **Quyon** discussed hand made dresses and samplers, and had a sewing machine demonstration. A sewing course was completed, with 15 garments made. **Shawville** had a cake decorating demonstration given by Mrs. N. Horner, and the art of leathercraft was shown by Mrs. R. Carswell. Donations were made to a Recreation Fund and a Cemetery Fund. **Stark's Corner** also had a sewing course, conducted by Mrs. Wells, and a sewing machine demonstration. Articles (most economically made) were exhibited, and a history of the cost given. These were later sold.

QUEBEC:

Valcartier discussed vegetables, and ways of storing and serving them. A Dominion Day Dance was held, proving very successful financially.

ROUVILLE:

Abbotsford once again entertained the "Golden Agers".

SHERBROOKE:

Ascot members attended "Open House" at the new wing of Lennoxville High School. A travel talk by Mrs. F. Ingham, told of a week-end with the Canusa Campers. **Belvedere** saw slides of member activities and a sale of home baking. **Brompton Road** celebrated Grandmothers' Day. Mrs. Roy Sutor, County president was a guest at the meeting when Pennies for Friendship were collected and a cup cake contest held. **Lennoxville** had a phantom food sale, and brought in articles for the fair booth and spools for Marcil. Pamphlets were borrowed on house plants and lawns, and talks given on the care of bouquets, Ormstown Fair, and the Warwick Woolen Mills. Work was done at the Cancer Dressing Station. **Milby** have placed a picnic table by the roadside, and have visited the Grace Christian Home, where they served tea, and remembered the inmates with gifts.

VAUDREUIL:

Cavagnal enjoyed a tour of Upper Canada Village, instead of their monthly meeting. **Harwood** had a Home Economics meeting, with each member contributing a new idea to help the homemaker. The prize for the best idea was won by Mrs. Hobbs. A successful Tea and Sale were held. Several members joined Cavagnal on their tour.

STANSTEAD:

Beebe held their meeting at the home of a New Canadian (not a member yet) who displayed her handiwork—paintings, murals and miniature chalets, complete with furnishings. Donations were made to four hospitals. **Minton** enjoyed coloured slides shown by Clifford Dean, with the collection going to the Crippled Childrens' Camp. **Ways Mills** heard an account of a recent trip to California given by Mr. J. Hunter. Pictures and snapshots were also shown.



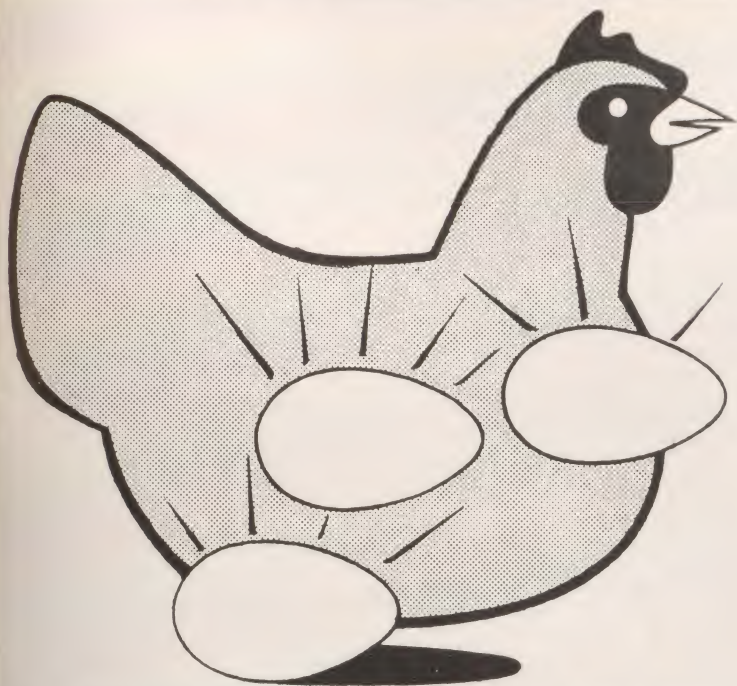
Cowansville WI members were guests of Stanbridge East recently.



Baby Shower gift being presented to Mrs. C. Sherren, a member of the Abercorn W.I., by the president, Mrs. H. Page.



Some of the members who attended the tile work course in Hemmingford.



EGG PRODUCTION BASED ON EFFICIENCY AND PROFITS WITH "FÉDÉRÉE"

Our modern competitive agriculture requires higher efficiency, higher yields and higher profits!

This is more true in the commercial production of eggs.

Extensive research by the CO-OP Fédérée scientists has led to outstanding laying feeds.

The All-Mash laying Ration FEDEREE 16% has proven that:

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- ★ **The producer** gets a higher production, lower feeding costs and higher profits.

The Fédérée all Mash Ration also contains AERO SHELLMAKER, supplying needed calcium in a readily available form. It reduces cracks — improves SHELL quality.

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Red and White Checkers in His Blood!

Ask any two dozen people what the Red and White Checkerboard means. Some will say, "Checkers", some will say, "Chess!" . . . and some will say "Ralston Purina!"

At least one will put two and two together and decide that Purina Dealers must be great checker players, because they paint checkerboards on their stores and trucks. But this isn't necessarily true. Your local Purina Dealer *might* be the county chess and checker champion. Then again, you might beat him 5 games out of 6. Because his Checkerboard has nothing to do with playing games, let me tell you about it.

Today, about the only similarity you'll note in some families is that they share the same last name. A hundred years ago it wasn't so. Then, many families in rural North America carried their own distinctive trademarks. The woman of the family bought cloth from one of the large bolts in the General or Dry Goods Store. Enough to make shirts for dad and the boys, dresses for all the women-folk . . . all from the same piece of cloth.

A young boy, Will Danforth, who worked in his father's store in Charleston, Missouri, in the late years of the 1800's liked this. Why, the town just brightened up when the wagons arrived with the farm-families coming to town to do the week's shopping. There were families in strong, solid colours . . . some families were dressed in floral prints. Then, along would come a family in a happy stripe. But young Will liked the Brown family best, their shirts and dresses were made from the gay bolt of Red and White Checkered material. There was no mistaking them . . . or losing them — you could pick the red and white checker-wearers out in any crowd; they were one big, bright, happy family; everyone could see that.

Years later, in 1900, when Will Danforth's Ralston Purina Company had grown so big that it had almost a hundred employees, Will decided it was time they had a trademark . . . something to identify the mill, and the personnel as one big happy family. Will remembered Farmer Brown and his family. He selected the bright Red and White Checkerboard for Ralston Purina's symbol. They painted Red and White Checkers on the mill, they painted them on the delivery wagons. And, as the years went on, they painted Red and White Checkers on the Laboratories, the Research Farms and the Purina Dealerships that sprung up across Canada. Today Ralston Purina has by far the largest manufacturing, research and sales organization of any feed company in the whole world.

William Danforth loved the Red and White Checkerboard. They used to smile affectionately and say that Will Danforth had Red and White Checkers in his blood. We don't know about *that*, but we do know the Purina Dealer in your neighbourhood paints his store with a Red and White Checkerboard to tell you that he is a member of a great, happy family. He is proud that our Canadian Ralston Purina Company, Limited is "related" to Ralston Purina Companies in the United States, Mexico, France, Germany, Italy, Jamaica, Central and South America. It's nice to be part of such a large complex family that has such a simple goal — to help the farmer make a better profit from his feeding operation.

We hope you remember this the next time you pass a Purina Dealer's with his Red and White Checkerboard . . . it means he's there to serve rural Canada, the best way he knows how.

Watch for Chapter IV entitled, "Why is the kettle on the mule's tail?"

Canadians who want bigger profits tomorrow feed Purina Chows today.



RALSTON PURINA COMPANY, LIMITED
WOODSTOCK TORONTO WHITBY MONTREAL SAINT JOHN

